

GÉANT2

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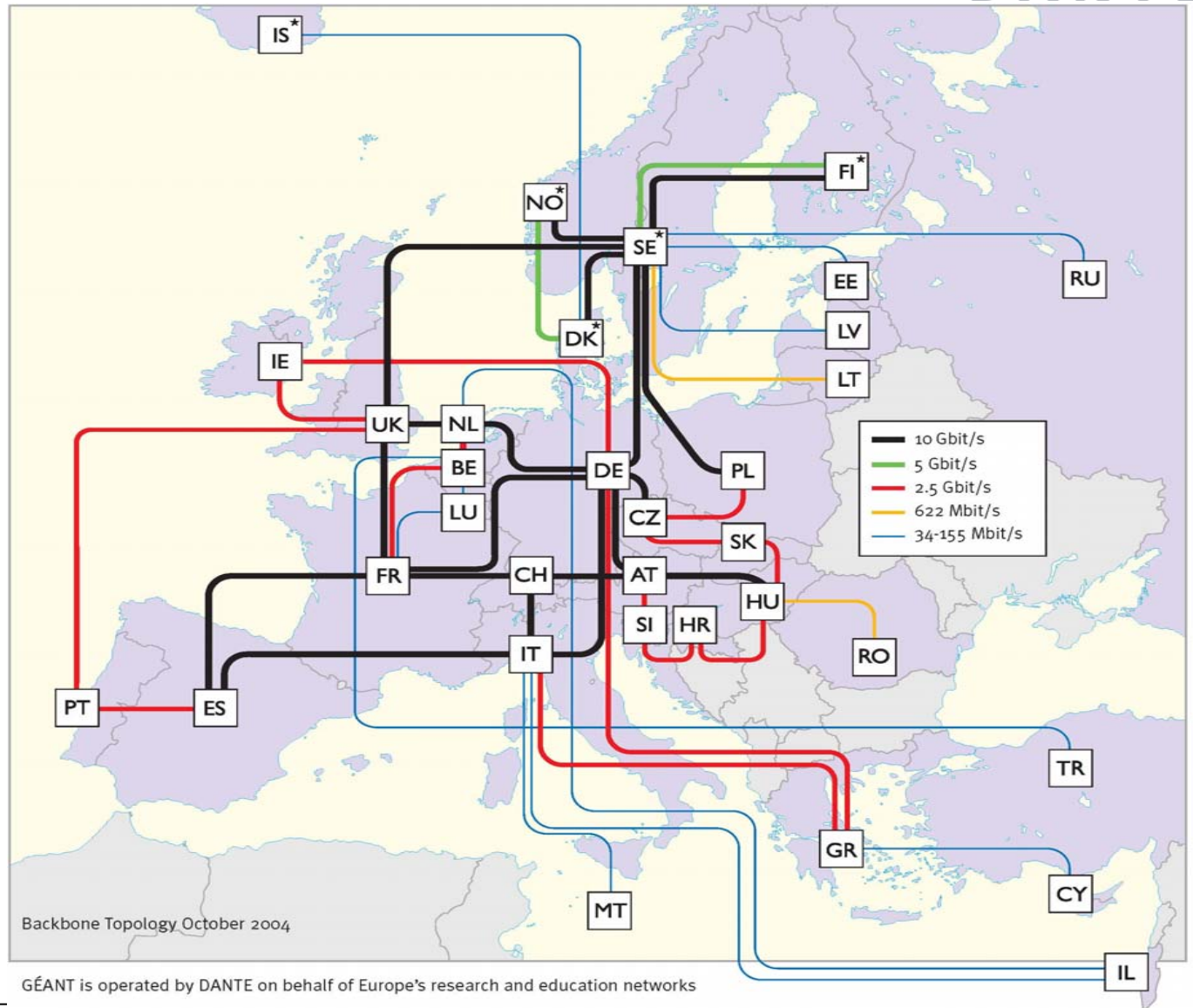
GÉANT Today



Connecting 33 European countries and 29 NRENs

Backbone capacities from 10Gb/s to 34Mb/s

Backbone based on Juniper M-series routers



GÉANT Services



- **Best Effort IPv4/IPv6**
- **Multicast IPv4/IPv6**
- **Premium IP**
- **Less than Best Effort IP**
- **MPLS**
- **L2-VPN**
 - Martini L2-circuits, Juniper CCC



GÉANT2 Service Aspirations



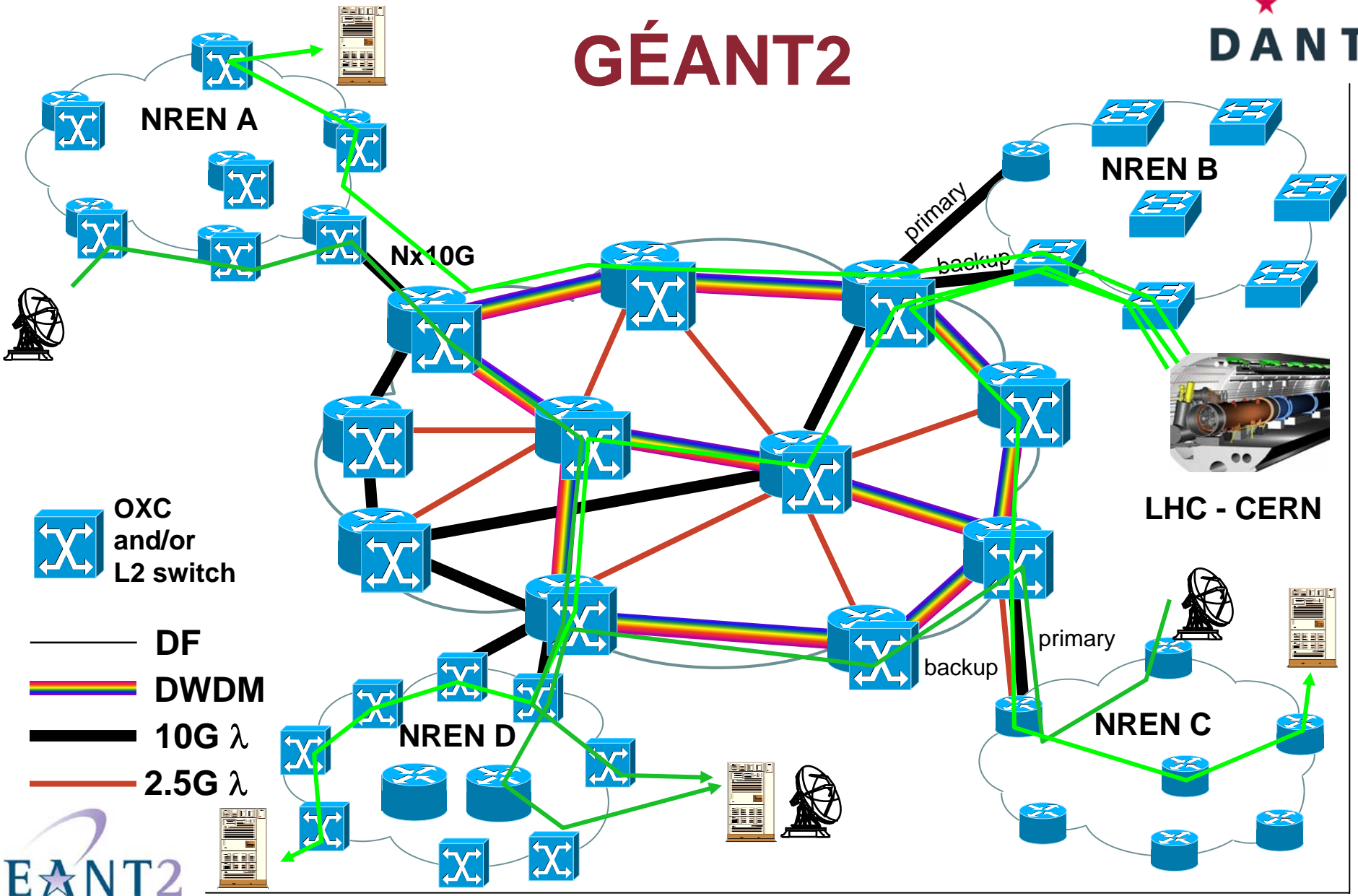
- Versatility to better facilitate E2E services
- Continue to provide quality IP transit services
- Tune existing IP service platform
 - Optimise platform
 - Enhance resilience
- Offer “Enhanced MBS” [or “lightpath” service]
 - “Wavelength” services for big users
 - Sub-wavelength services as well
 - Develop automated (“on demand”) provisioning and advance scheduling
 - Up to 10G
- Endeavour to be prepared to implement 40G services



GÉANT2 BIG Users

- **CERN LHC**
 - 11 Tier1 sites
 - » 7 in Europe
 - » 4 outside Europe (US, Canada and Taiwan)
- **EVN (European VLBI Network)**
 - 15 sites
 - » 5 already connected
- **MUPBET**
- **DEISA**

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Trans-Atlantic connectivity



GÉANT

10G AMS – CHI (NSF)

2.5G LON - NYC

2.5G VIE – NYC

2.5G FRA – WASH

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10G AMS – NYC (NSF)

10G LON – NYC (I2)

Nx10G EU – US (GN2)



GÉANT 2

Connectivity and Equipment Procurement

Connectivity:

- a mix of DF and leased capacity, with a strong preference for DF where possible.

Equipment:

- a mix of DWDM and switching technology

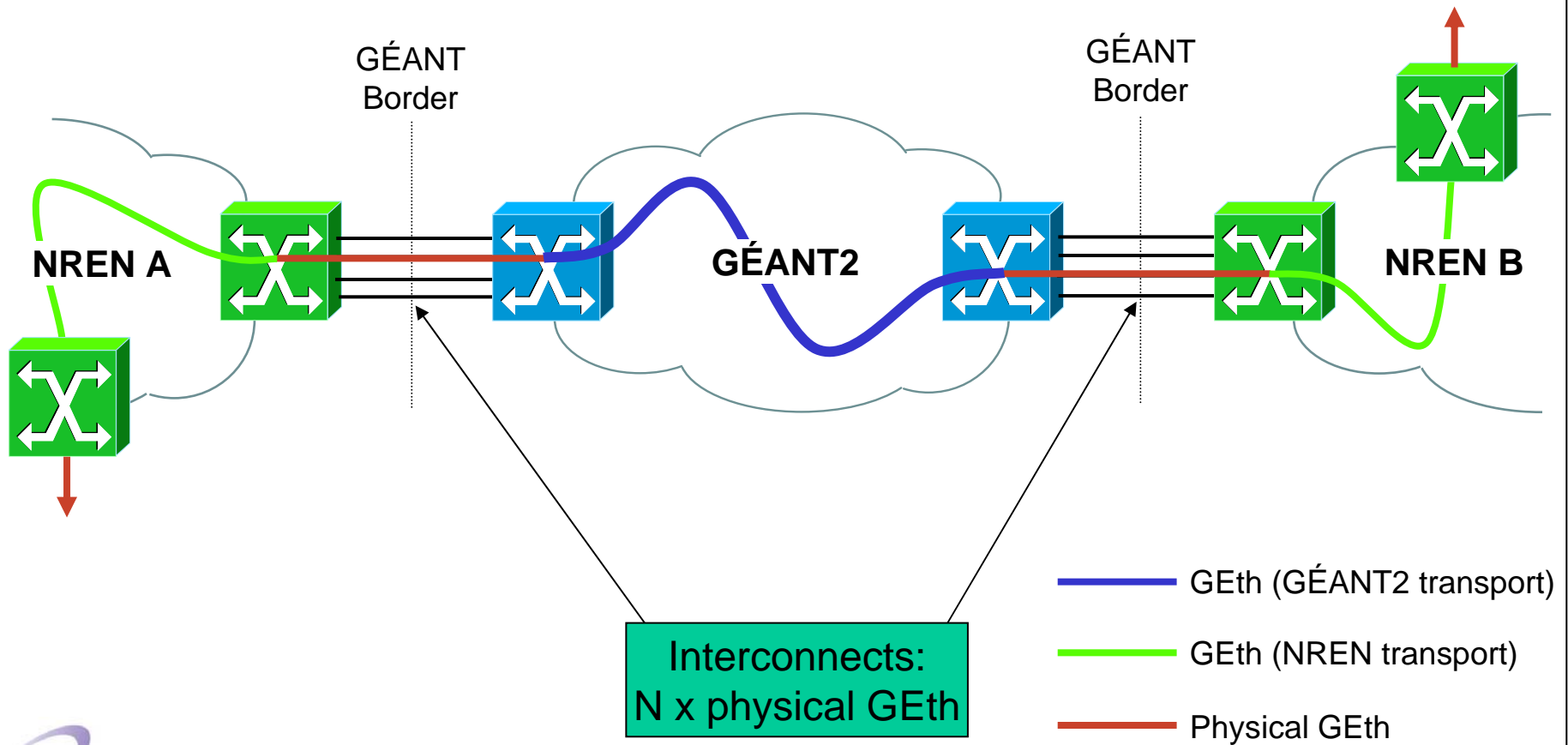
Both close to be concluded.

Service Scenarios

- **Considered three P2P user services:**
 - Full [or partial] rate GEth
 - Full [or partial] rate 10GEth
 - STM-n
- **Considered three approaches for GÉANT2-NREN interconnection:**
 - Physical GEth [+ VLANs]
 - Physical 10GEth [+ VLANs]
 - STM-16 or STM-64 [+ GFP/VCG]

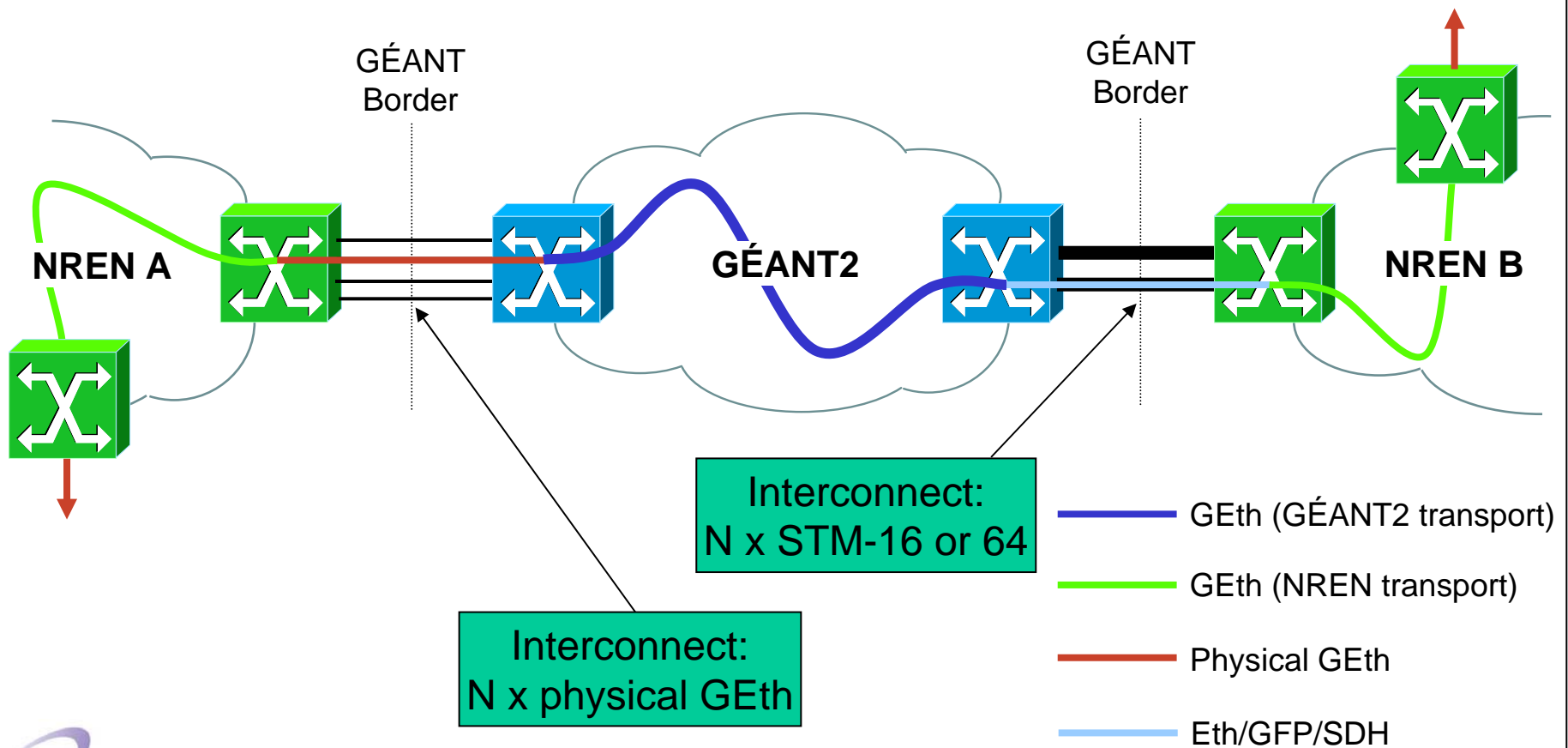
Scenario 1: P2P GEth

(GÉANT borders: physical GEth – physical GEth)



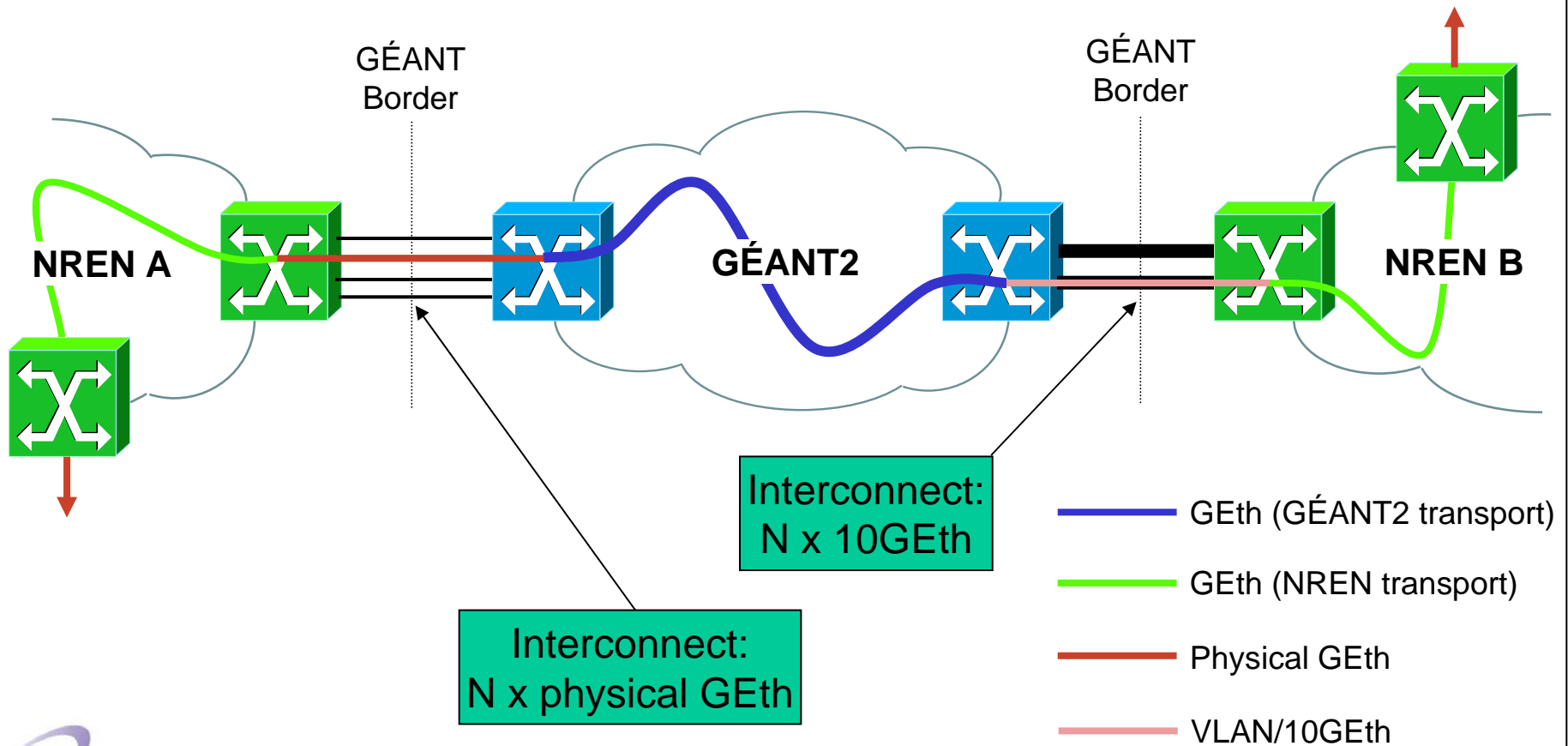
Scenario 2: P2P GEth

(GÉANT borders: physical GEth – STM-16 or 64)



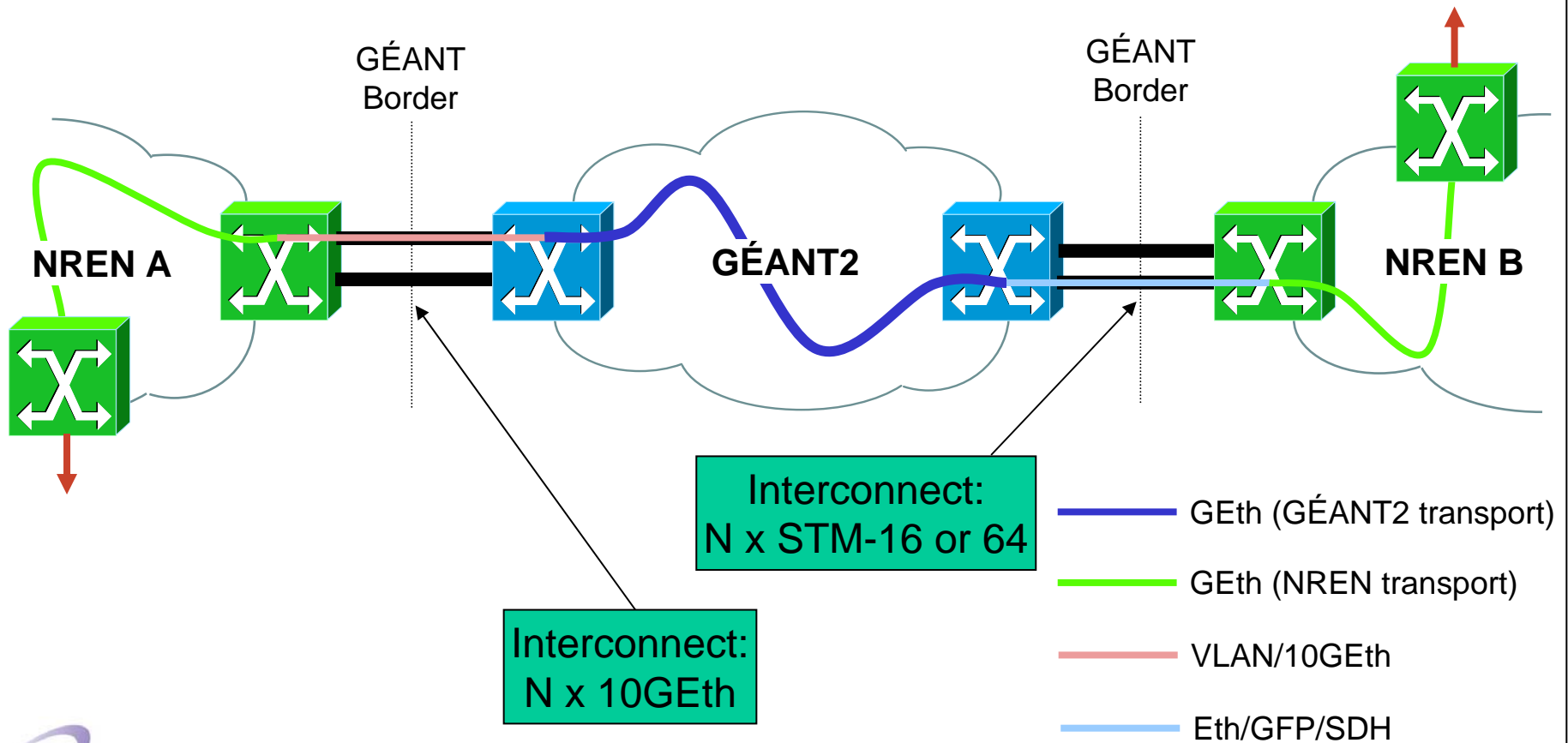
Scenario 3: P2P GEth

(GÉANT borders: physical GEth – physical 10GEth)



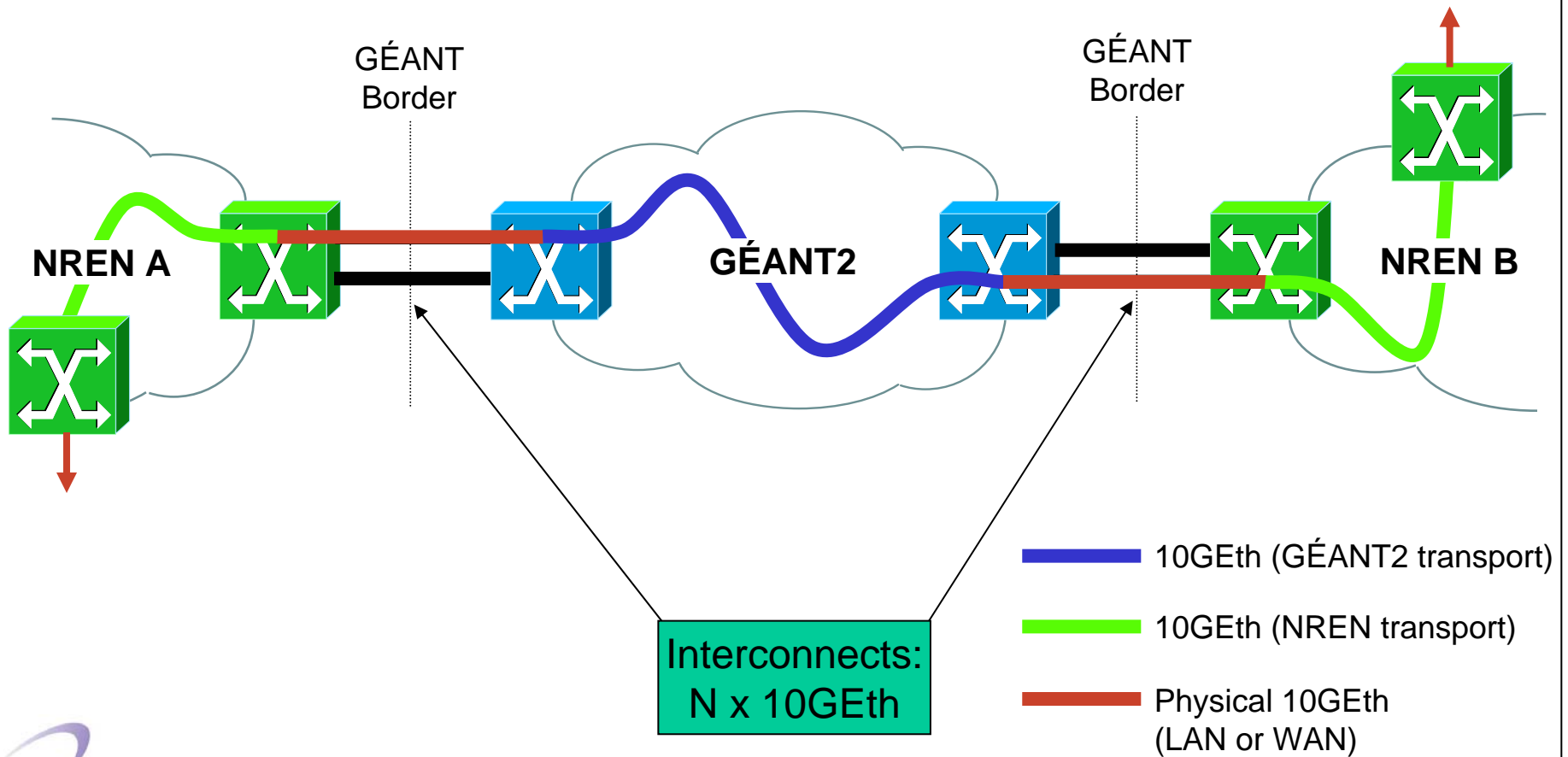
Scenario 4: P2P GEth

(GÉANT borders: physical 10GEth – STM-16 or 64)



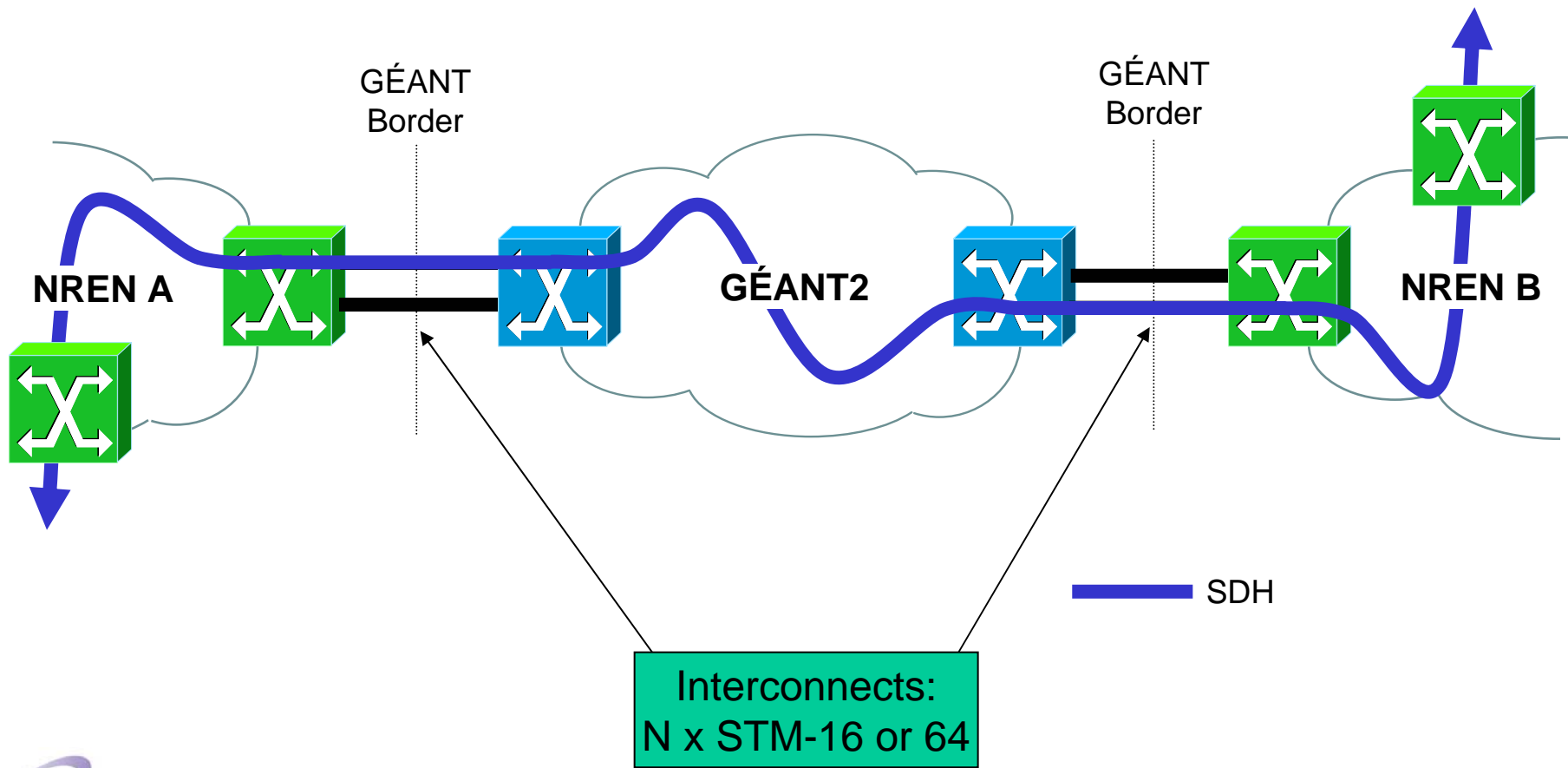
Scenario 5: P2P 10GEth

(GÉANT borders: physical 10GEth – physical 10GEth)



Scenario 6: P2P STM-n

(GÉANT borders: STM-16/64 – STM-16/64)



Conclusion

- **GÉANT2 is designed to meet the demands of emerging high BW applications.**
- **It aims to support e2e, multi-domain MBS [“lightpath”] signalling and setup.**
- **It is, in GLIF terms, a Distributed Open Optical Exchange and one of the most important contributors to GLIF.**

www.geant2.net

Thank you !